

COMMENTS ON THE DISTRIBUTION OF *TILLANDSIA RECURVATA* L.  
(BROMELIACEAE) IN TEXAS

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ABSTRACT

Recent collections provide new records for the distribution of *Tillandsia recurvata* L. (Bromeliaceae) in Texas. An alternate explanation for the supposed spread of the species, attributed to local or regional environmental change, is also offered.

KEY WORDS: Bromeliaceae, *Tillandsia*, Texas, biogeography

McWilliams (1992) chronicled the apparent northeastward expansion (Figure 1) of the distribution of *Tillandsia recurvata* L. in Texas, which he attributed to local or regional environmental change. Citing the observations of professional botanists, he may have documented the spread and occurrence of the species in Brazos County, but the remainder of the supposed spread is open to a different interpretation. His expansion rests primarily upon the eastern limit of the historical distribution given by Birge (1911) that was determined in the following manner:

"In order to determine the exact distribution of *Tillandsia recurvata* in the Southwest[,] specimens were sent to the Superintendents of Schools of the counties on the supposed border line with inquiry as to whether the plant grew in that region. The resulting information together with personal observations was used in making the map showing its distribution in Texas."

The resulting map (Figure 1) resembles an irregular triangle with the apex reaching as far north as southern McLennan County, the eastern side intersecting the Rio Grande at Brownsville (Cameron County), the western side cutting the Rio Grande at Del Rio (Val Verde County), and the base of the triangle extending along the Mexican border. As mentioned above, the occurrence of the species in a given area rested upon the observations of non-botanists near a supposed borderline. Apparently, specimens were not sent to Birge, only information as to the species' occurrence. Assuming accurate recognition of the species by the superintendents, the method would not account for the occurrence of the species outside of the supposed limits. Birge also

mentions that the apex of the distribution triangle just touches the 31° north latitude in Bell County, which is approximately four kilometers north of the present day town of Salado. Yet she includes within the mapped distribution, the southern tip of McLennan County, 54 km outside of the stated distribution. Perhaps to account for error in her method, she extended the limits of the distribution of her map in a northern direction and may have done so for the eastern and western borders as well. As a result, the Birge depiction of the distribution cannot be considered accurate. Therefore, we believe that McWilliams' (1992) reliance on Birge's distribution does not substantiate the spread of the species, but only documents its occurrence in the eastern part of its distribution.

This hypothesis is further supported by the following new county records for the species (see Figure 1).

Specimens cited: TEXAS. Atascosa Co.: rare in *Prosopis* pasture 31.5 mi S of Jourdontan on Hwy 16, ca. 50 yd E of roadside park, 6 Apr 1975, *Lewis & Joughin s.n.* (TEX-LL). Bastrop Co.: young oak-cedar-yaupon woods in & along ravine of Wilbarger Creek drainage, ca. 1.3 to 1.4 mi ENE of jct FM 969 & FM 1704, 22 Nov 1986, *Carr & Kutae 7964* (TEX-LL). Bell Co.: Moffat Cemetery off Hwy 36, 9 Jun 1998, *White 518* (BAYLU). Brown Co.: Camp Bowie Military Reserve, Dept. of Defense Site, ca. 2.4 mi E of jct US Hwy 377 & FM 45 on FM 45, in live oaks along spring fed creek, 27 Jul 1998, *Loar 001* (BAYLU). Caldwell Co.: roadside along FM 713, 3.7 mi E of jct FM 86, between McMahan and Delhi, 18 Jul 1986, *Lemke 661* (TAMU). Calhoun Co.: open grassy thickets above bay, 4 mi S of Port Lavaca, on shrubs, *Correll 28896* (TEX-LL). Colorado Co.: right side of FM 102, 1 mi S of Eagle Lake, 12 Apr 1971, *Thornton 24* (TAES). Dewitt Co.: 10 mi S of Cuervo on US Hwy 183, 5 Mar 1993, *Holmes 6334 & Yip* (BAYLU). Edwards Co.: 14 mi SW of Rockspring, Reid Ranch, 3 Apr 1983, *Johnson 137* (BAYLU). Fayette Co.: Hwy 77, Schulenburg, 27 Mar 1971, *Cary 155* (TAES). Gillespie Co.: on oaks in small park 6 mi S of Fredericksberg on road to Kerrville, 18 May 1962, *Correll & Ogden 25311* (TEX-LL). Gonzales Co.: oak trees in Palmetto State Park, camping area near Park Road 11, 6 Apr 1968, *Leonard 2023* (TEX-LL). Guadalupe Co.: 6 mi E of Seguin, *ign. leg.* (TAES). Henderson Co.: Geddie farm, 3 mi N of Athens, 17 Nov 1973, *Mathis 19* (TAES). Hidalgo Co.: Santa Anna Wildlife Refuge, 6 Apr 1957, *Correll & Schweinfurter 15663* (TEX-LL). Hill Co.: on E bank of Brazos River 0.6 km below Lake Whitney dam, 97.36468° lat. 31.86605° long., 6 Jun 1998, *Branch 302* (BAYLU). Irion Co.: 4.3 mi E of Mertzon on Hwy 67 at jct with Spring Creek, in live oaks and mesquite, 26 Jul 1998, *Singhurst 6872* (BAYLU). Jim Wells Co.: in woods of mesquite, hackberry, anacua, & live oaks near creek, 12.4 mi S of Alice, 24 Nov 1954, *Johnston 542126* (TEX-LL). Kenedy Co.: Norias Division of King Ranch, 5.5 mi N of Norias, 3 Nov 1949, *Lundell 15033* (TEX-LL). Kerr Co.: in live oaks in Kerr Wildlife Management Area, 30 Jul 1998, *Singhurst 6880* (BAYLU). Kimble Co.: in live oaks along S Llano River in S Llano River State Park, 27 Jul 1998, *Singhurst 6876* (BAYLU). Kleberg Co.: Hwy 771, ca. 1 mi W of water edge at Riviera Beach, 100 m N of road, 13 Oct 1960, *Tranverse 1799* (TEX-LL). Live Oak Co.: Atascosa River 1.5 mi E of US 281 on FM 99, Whitsett, 19 Apr 1981, *Bensmiller 199* (TAMU). Madison Co.: Navasota River Bank at Hwy 21 Bridge, 27 Aug 1996, *Neill 282* (TAMU). Mason Co.: in live oaks at Mason Mt. Wildlife Management Area, 30 Jul 1998, *Singhurst 6879* (BAYLU). McCulloch Co.: FM 1851 & San Saba River. 4.5 mi N of Fredonia, in live oak and mesquite, 24 Jul 1998,

*Singhurst 6869* (BAYLU). McMullen Co.: Hwy 173, 10 mi N of Tilden, 3 Nov 1962, *Gungora, Garza, & McCart 8529* (TEX-LL). Medina Co.: SW side of Hill Country State Natural Area in live oaks along Bandera Creek, 27 Jul 1998, *Singhurst 6878* (BAYLU). Menard Co.: jct of Hwy 864 & San Saba River, 3.9 mi W of Ft. McKavett, 26 Jul 1998, *Singhurst 6973* (BAYLU). Real Co.: Hwy 83, 1 mi S of Leaky, 27 Mar 1964, *Corasco & McCart 9031* (TEX-LL). Refugio Co.: mott near Melon Creek, Red Well Pasture, Greta Ranch, ca. 8 mi NE of Refugio, 21 Jul 1981, *Hill 10589* (TAES). San Patricio Co.: 500 ft W of Big Lake, Welder Wildlife Foundation Refuge, 12 Mar 1980, *Critchfield 7* (TAMU). San Saba Co.: Colorado Bend State Park along trail to Gorman Falls, in live oaks adjacent to Colorado River, 24 Jul 1998, *Singhurst 6881* (BAYLU). Schleicher Co.: 3.8 mi N of jct FM 2084 & Hwy 190, jct FM 2084 & Poor Hollow, in live oaks and elms, 25 Jul 1998, *Singhurst 6871* (BAYLU). Sutton Co.: ENE of jct FM 3130 & IH-10 towards Roosevelt, WSW of Cedar Hill Cemetery in live oaks along N Llano River, 26 Jul 1998, *Singhurst 6875* (BAYLU). Tom Green Co.: S Concho River in live oaks, 0.4 mi NW of Christoval, 25 Jul 1998, *Singhurst 6870* (BAYLU). Williamson Co.: live oaks W of Round Rock, 17 Aug 1946, *York 46292* (TEX-LL).

Depending on location, the new records expand the known distribution of *Tillandsia recurvata* presented by Birge (1911), Smith (1944), and McWilliams (1992), from 100-240 kilometers northward. It also shows that the species is considerably more widespread in the central, western, and northern parts of the Edwards Plateau and nearby vegetational regions than previously thought.

The common feature among most of the new records is the proximity to large bodies of water or permanent creeks, falls, or springs. In Irion County, the species is fairly localized to Spring Creek in mainly *Quercus fusiformis* Small (Fagaceae) and *Prosopis* (Fabaceae). In Tom Green County, along the South Concho River, *T. recurvata* is very abundant in *Quercus fusiformis*, *Prosopis*, *Celtis* (Ulmaceae), and *Ulmus crassifolia* Nutt. (Ulmaceae). Similarly, in the southeastern corner of Kimble County, along the South Llano River, several healthy populations exist in creek drainages. Menard County's population, on the San Saba River, is a little more sparse with only a few plants per tree. In McCulloch County, the species is abundant in *Q. fusiformis*, *Prosopis*, and *Juniperus ashei* Buchh. (Cupressaceae) along the San Saba River in the southern two thirds of the county. The number of *T. recurvata* in *Q. fusiformis* at the Brown County site is described as "plentiful along spring-fed creek." At the Hill County location, *T. recurvata* is abundant, with one to several plants per tree for a distance of about 400 meters along the edge of a vertical limestone cliff. Numerous seeps are perched on the cliff, which is 10-15 meters high on the east side of the Brazos River. Several trees, primarily *Juniperus ashei* and *Quercus fusiformis*, were infested with a hundred or more plants. The sheer number of plants occurring in Hill County indicates a well-established and presumably old population. No specific mention of abundance or a creek is made for the Henderson County specimen, but, based on label information, the location would probably be nearby Caney Creek, three miles north of Athens.

For regions with less rainfall, Birge (1911) mentions that *Tillandsia recurvata* "is in many cases confined entirely to the river valleys." She also says ". . . its northern range is determined by the cold of the winters." It appears moisture and heat retention from large bodies of water moderate the local environment, forming a microclimate suitable for this species' growth.

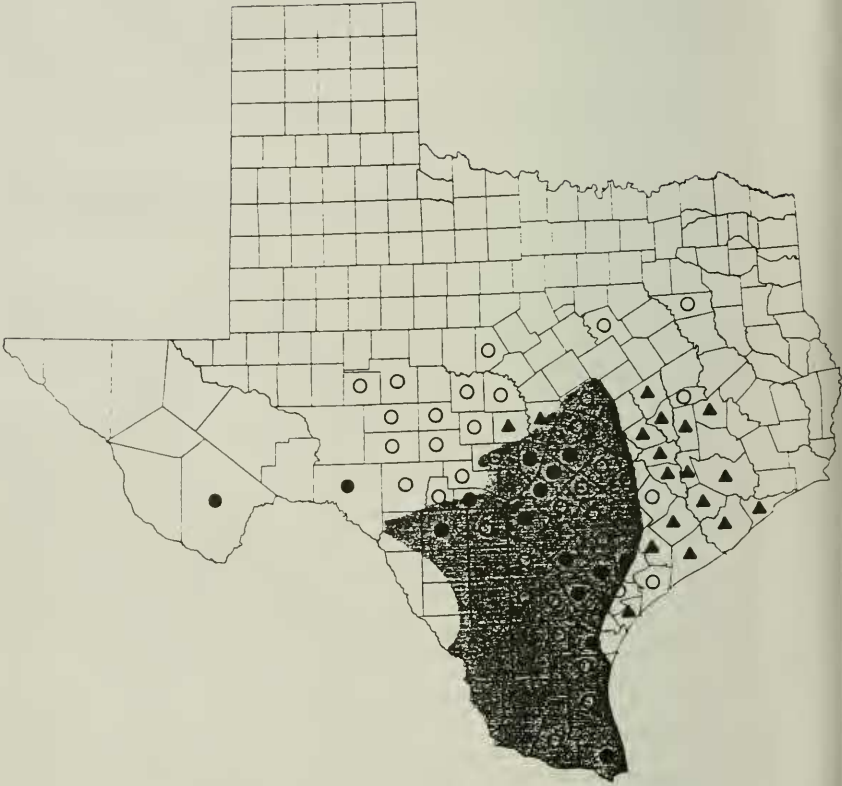


Figure 1. Shading depicts the distribution of *Tillandsia recurvata* in Texas reported by Birge (1911). Closed circles represent records cited by Smith (1944). McWilliams' (1992) expansion of the distribution shown as triangles. New county records illustrated as open circles (see text for explanation).

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